

Java web development: Design and implementation

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Abstract. As society becomes more and more competitive, the pressure of exams faced by students is also increasing. For example, high school students are about to face the college entrance examination, college students face the graduate school examination, graduates face the job, and many other problems. The pressure on students is increasing, which may lead to psychological problems that may jeopardize their physical and mental health. To prevent students from having psychological issues, this project researched a Java web that analyzed students' heart problems and provided corresponding solutions according to the problems. In this Java web, a heart questionnaire evaluation is provided, which is divided into selective questions and scored according to the user's filling in the situation. According to the user's scores combined with the big data, the user's existing heart problems was analyzed. The user's score is combined with big data to analyze the user's heart problems, and finally feedback to the user's heart problem suggestions. This mental health assessment helps students to face the stress of life's difficulties positively and to maintain a positive attitude to deal with any difficulties.

Keywords: Mental health, JavaWeb, System design and implementation

1. Introduction

The study shows that with the intensification of social competition, students' mental health problems have become a growing concern [1]. Students' mental health problems include learning pressure, interpersonal tension, low self-esteem, depression, anxiety, etc. Relevant studies have shown that regular heart research studies for students can effectively address the stress that arises when students face difficulties, and thus prevent students from developing mental health issues [2]. In the course of the experiment, it was found that students who had regular mental health assessments showed greater coping ability in dealing with psychological problems in areas such as academic stress and interpersonal relationships. At the same time, the incidence of psychological problems such as depression and anxiety among these students also decreased. This shows that the mental health assessment system has significant effects in preventing and solving students' mental health problems [3]. If these problems are not given timely attention and intervention, they may have a negative impact on students' academic performance, interpersonal relationships, and future development [4]. Therefore, it is of great significance to utilize modern information technology to assess and manage students' mental health problems, JavaWeb technology, as a mature Web development technology, has the characteristics of cross-platform, high efficiency, and security, which is suitable for constructing a system for assessing students' mental health problems. It was found that having students take mental

health assessments regularly would significantly reduce the probability of their mental health problems [5]. Also, this is the specific meaning of this design heart health assessment java web. One of the major innovations in the research heart health assessment java web is the addition of ChatGPT analysis function to the traditional heart health assessment questionnaire and feedback to the user's opinion, this innovative enhancement has greatly improved the efficiency of the product. The structure of the article consists of a summary of the methods and results of the survey used in this research. The goal of this experiment is to solve the main student mental health issues today. The experimental results also show that personalized feedback on students' mental health assessment results using ChatGPT analytics can further improve the efficiency and user satisfaction of the product. In addition, as social competition intensifies, students' mental health problems are becoming increasingly serious. Therefore, in the future, it is necessary to continue to optimize and improve the mental health assessment system to meet the needs of more students. In addition, it is still necessary to pay attention to the latest research results and developments in the field of mental health at home and abroad, to update the mental health assessment system promptly. It is hoped that through continuous learning, innovation, and optimization, the product will always maintain its leading position and provide the best mental health services to students. In conclusion, through this study, a mental health assessment system based on JavaWeb technology has been successfully constructed, which can help students prevent and solve mental health problems to a great extent. With the development of modern information technology, the product will better serve the majority of students, improve their learning effect and interpersonal relationships, and lay a solid foundation for their future development.

2. Methodology

2.1. Research Process

2.1.1. Login page. First, use Java to create a user login page. Define a Servlet class named LoginServlet, inherited from the HttpServlet class. Define a doPost method to handle HTTP POST requests. In the doPost method, set the response content type to text/HTML and get the print writer for the input stream. Get the user ID and password from the request. Connect to the MySQL database and prepare a SQL query to verify the user credentials. Execute the query to check if the user exists and the password matches. If the user exists and the password matches, output "User logged in successfully" and store the user information in the session. Redirects to the Mainpage. jsp page. If the user does not exist or the password does not match, output "User not found". If an exception occurs, print a stack trace. This Servlet is mainly used to handle user login operations. When a user submits a login request, it verifies that the user ID and password are correct. If the validation is successful, it stores the user information in the session and redirects to the main page. If authentication fails, an error message is returned. This servlet allows the user to log in to the system and access other protected resources.

2.1.2. Questionnaire Servlet. Create the QuestionnaireServlet page. On designing the content of the questionnaire, which contains 10 questions about heart health. The question categories are all multiple choice for the convenience of the user. The main function and structure of the page is to first define a Servlet class that inherits from HttpServlet. then use the doGet method to handle HTTP GET requests. Then the questionnaire data filled in by the user is passed in by connecting to a MySQL database. The survey results are stored in LinkedHashMap.

2.1.3. Stress Level. User heart health assessment ratings. Integration of scores from previously completed user heart questionnaires. Based on the scoring results, it is possible to determine which stage of the heart health data the user is in. Define a doGet method to handle HTTP GET requests. In the doGet method, set the response content type to text/HTML and get the print writer for the input stream. Connect to the MySQL database and prepare a SQL query statement to retrieve the questionnaire information. Execute the query and store the result in LinkedHashMap. Iterate over the

questions in questions, calculate the total score and count, and construct a stress level string. If the user submitted the questionnaire, output “Your stress level is: [stress level]”. If the user did not submit the questionnaire or there is no data available, output “No data available”. If an exception occurs, print a stack trace. This Servlet is mainly used to process the questionnaire data submitted by the user and to calculate the user’s stress level. When the user accesses the Servlet, it connects to the database, gets the questionnaire information, calculates the total score and the number of times, and outputs the user’s stress level. Through this Servlet, users can understand their stress levels and take appropriate measures.

2.1.4. GPT Connector. The final connection to ChatGPT to analyze the user’s mental health questionnaire score is first used to connect to the MySQL database and get the user’s test scores in the database. The Servlet relies on a Python script to process user messages and return results. Import the required libraries and modules. Then create a WebServlet class called GPTConnector, inheriting from the HttpServlet class. Override the doGet method to handle HTTP GET requests. Get the user ID in the session. connect to the MySQL database. Query the user’s last 10 test scores and the last test score. Calculate the average score. Construct a message containing the average score and the last test score. Call a Python script to process the message and get the returned results. Set the response content type and write the results to the response. If the user is not logged in or the session has expired, return an alert message.

2.2. Research Modules

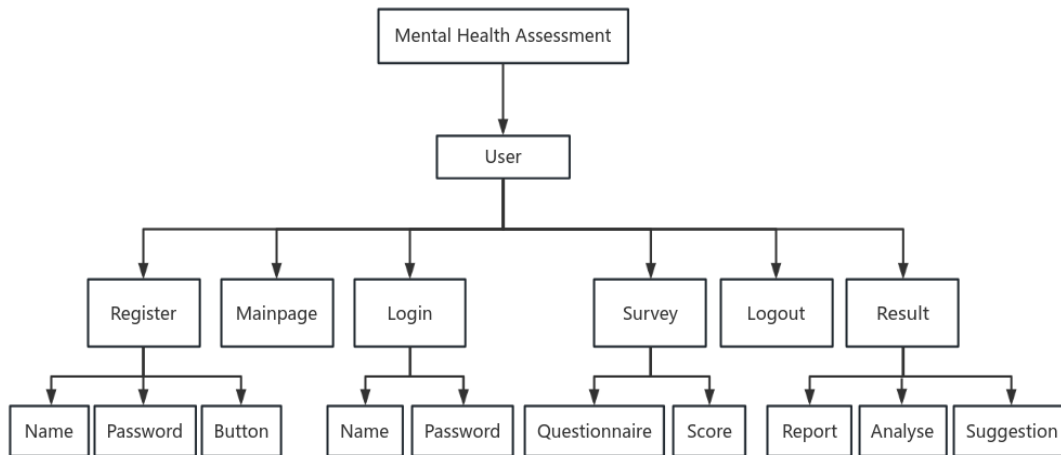


Figure 1. The framework Mental Health JavaWeb.

Each module in this heart health assessment Java web is shown in Figure 1. as well as a modular presentation of the Research Process described above. According to this flowchart table, you can see the specific step-by-step division of this Java web as well as the functional integration. Next, it explains in detail each module and its functional integration in this mental health assessment Java web system based on the flow chart in Figure 1.

User Login Module:

Users log in to the system in this module, providing a username and password. After successful login, the system assigns a session to the user for subsequent authentication. In addition, the user can change personal information such as passwords.

Questionnaire Module:

Users complete the mental health assessment questionnaire in this module. The questionnaire consists of a series of questions such as an assessment of psychological symptoms like anxiety, depression, etc. Once the user has answered, the system calculates a score based on the user’s answers and generates the appropriate assessment results.

Assessment results display module:

The system displays the user's assessment results in this module, including the total score, the scores for each indicator, and the corresponding explanations. Users can view their assessment results here and analyze the results.

Psychological advice module:

The system provides users with targeted psychological advice based on their assessment results. These suggestions include improving lifestyle, adjusting mindset, seeking professional help, and so on. Users can adjust and improve their mental health according to these suggestions.

3. Results

Figure 2 presents the user with the main login page, which contains the user's account information to be filled out and collected. If the user has not yet registered, it is recommended to select the "Register" button to register. The page style uses a CSS layout, which makes the page style clean and simple.

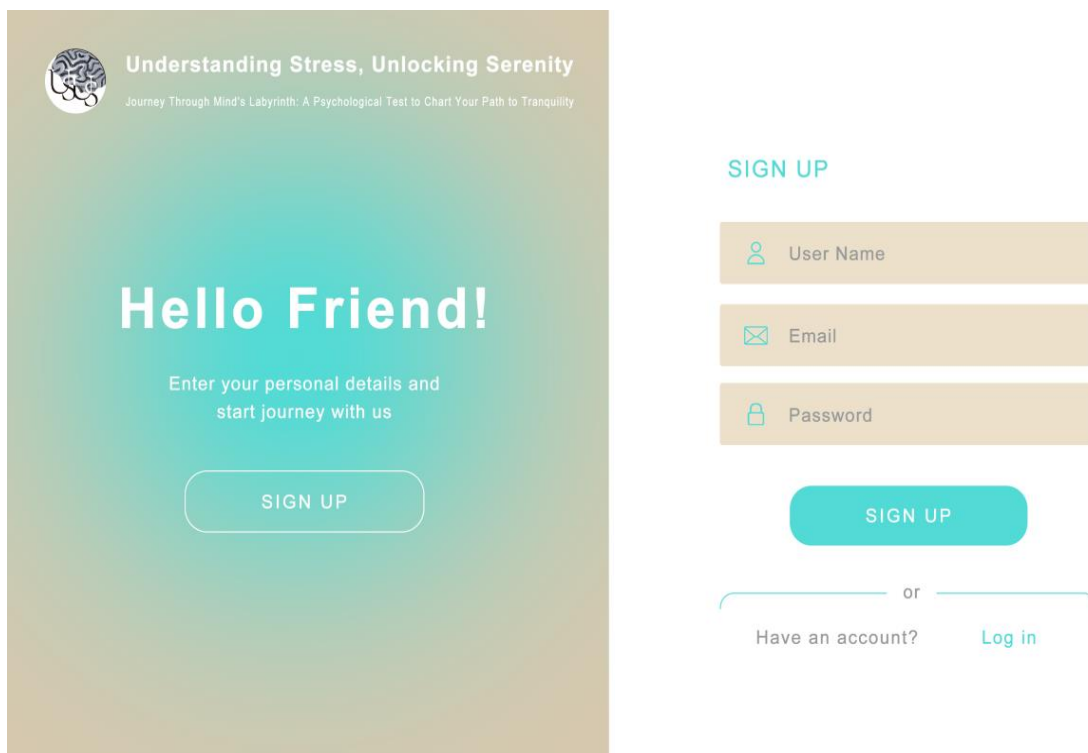


Figure 2. Login page of user information.

In the login page of the Heart Assessment Java Web application, the user is required to enter a username and password for authentication. The page design is simple and contains a login form and a login button. After filling in the username and password, the user clicks on the login button and the system verifies the information entered by the user. If the verification is successful, the user enters the main page of the system, otherwise, the user is prompted to re-enter or contact the administrator. To ensure the user experience, the login page can also add some tips, such as forgetting the password, registering a new user, and so on. Meanwhile, to protect the user's information security, the login page uses encryption technology to transmit the information entered by the user to ensure that the user's information security is not at risk.

The image shows a web application interface for a stress assessment. At the top left is a logo of a brain with a maze inside, next to the title 'Understanding Stress, Unlocking Serenity' and the subtitle 'Journey Through Mind's Labyrinth: A Psychological Test to Chart Your Path to Tranquility'. Navigation links 'ABOUT US', 'RETURN', and 'RETAKE' are on the top right. The main content area has a teal background and contains the following text:

Welcome to our Stress Assessment!

This assessment is designed to help you understand your current stress levels. Please remember that this is not a clinical diagnostic tool, but rather a means to help you better understand your emotional state.

- The assessment will take approximately 10-15 minutes.
- Please complete the assessment in a quiet environment.
- Answer the questions as honestly as possible for accurate results.
- All your responses will be kept confidential.

Let's get started!

The questionnaire consists of 12 numbered questions, each with five radio button options: Always, Often, Sometimes, Rarely, and Never.

1. Have you been feeling tired frequently lately?
 Always Often Sometimes Rarely Never
2. Do you find it difficult to fall asleep due to work or life stress?
 Always Often Sometimes Rarely Never
3. How often do you feel overwhelmed by your workload?
 Always Often Sometimes Rarely Never
4. Do you experience physical symptoms like headaches or muscle tension due to stress?
 Always Often Sometimes Rarely Never
5. How often do you find it difficult to relax or unwind?
 Always Often Sometimes Rarely Never
6. Do you experience frequent mood swings or irritability?
 Always Often Sometimes Rarely Never
7. Have you been withdrawing from social activities or avoiding social interactions?
 Always Often Sometimes Rarely Never
8. How often has stress affected your sleep patterns?
 Always Often Sometimes Rarely Never
9. Do you find it difficult to concentrate or focus because of your stress levels?
 Always Often Sometimes Rarely Never
10. Are you finding less enjoyment in activities you once enjoyed?
 Always Often Sometimes Rarely Never
11. How often do you feel unable to cope with the stressors in your life?
 Always Often Sometimes Rarely Never
12. Has stress affected your eating habits, either increasing or decreasing your appetite?
 Always Often Sometimes Rarely Never

At the bottom of the questionnaire area is a 'Submit Assessment' button. Below the button, a footer states: 'This platform strictly adheres to data protection regulations to ensure the security and privacy of user data. Privacy Policy | Terms of Data Use'.

Figure 3. Questionnaire of User mental health.

On the Questionnaire page of the Heart Assessment Java Web application in Figure 3, users are presented with a series of questionnaire questions that address mental health issues. These questions cover a variety of psychological dimensions, such as anxiety, depression, relationships, etc., and are designed to comprehensively assess the user's mental health. Users need to choose the option that best suits their situation and answer the questions in the order in which they are asked. When answering the questions, the system collects the user's choices in real-time and analyzes and processes the data after the user has completed all the questions. To ensure the user experience, the questionnaire page adopts a clear and concise design, which makes it easy for users to read and understand the questions.



Figure 4. User mental health test results.

In the structural analysis page of the Heart Assessment Java Web application in Figure 4, the user sees a structural analysis report on mental health generated by the system based on the questionnaire

data submitted by the user. The data shows the user's current heart score profile on a Big Data Heart Health scale. Let the user understand their heart health level. The data from most of the student's assessment results show that most of the students are particularly stressed when they face final exams or employment, thus affecting their mental health. Research has shown that these problems are likely to lead to anxiety, depression, and low self-esteem. Through the analysis of literature data [6], it can be clearly seen that if schools regularly conduct mental health assessments on students. In this way, the school can know the mental health of each student in a timely manner. In order to provide different psychological help for each student. This assessment result data can also be used as a reference for most students, aiming to help students adjust their own pressure. The data value of mental health assessments [7] does not stop at school, either. This data can be applied to different enterprises or units in society. This helps the company understand the inner thoughts of its employees. Thus improve the work efficiency and competition rate of enterprises. The specific method used to investigate the user's mental health is to judge the user's behavior habits by the time it takes the user to fill out the questionnaire. Secondly, the mental health assessment results of different users can be compared, so that users can clearly see the proportion of their mental health status in the population. This is very helpful for users to understand their own situation such as anxiety, stress, etc. If the user completes the mental health assessment on time and regularly, then the user can detect and prevent its existing problems as early as possible. This can reduce the probability of psychological problems in the future. Secondly, the mental health questionnaire data can be subdivided into user groups [8]. This is because the big data of questionnaire survey results will be statistically analyzed and the results in the same interval will be classified. For example, the different scores of users, and the time taken to fill out the questionnaire. In this way, we can better understand the different behavioral characteristics and habits of the group users. The advantage of the division method is that it can more accurately target the user's mental health problems and put forward reasonable plans for the user's mental health problems. Another advantage is that it can predict the collective psychological development trend of users. The results of psychological questionnaires can also provide valuable resources for the fields of psychology and sociology. In-depth analysis of these data can also facilitate cooperation and development between these different academic fields. At the same time, breakthroughs in other fields have also promoted progress in the field of mental health [9]. Therefore, the results of mental health assessment data play an indispensable role in various fields. These values allow users to understand their own physical and mental health positioning, understand what they need and how to improve. Combined with the big data display of the mental assessment results, it can be clearly understood that the main source of pressure for today's students is not reaching their expected goals, resulting in a gap in their minds. This may be caused by the excessive demands and expectations that families have placed on their children for a long time. Children suffer from psychological stress because they do not fulfill the requirements set by their parents. In order to solve this major psychological problem, the mental health assessment system gives advice that students need to actively communicate with their parents about their study plans and set relevant goals according to their own circumstances. Do not proceed blindly. In today's highly competitive society, most students define their worth by comparing themselves with their peers. When they find that their own value is too low in the big environment, the heart will involuntarily produce frustration. Even when frustrated, many users don't know what to do. Most users therefore choose to treat life negatively. Over time this can easily lead to mental health problems. In response to these problems, mental health assessment Java Web will provide adequate solutions according to the needs of different users. At the same time, they should also encourage students to set up correct values, recognizing that everyone's growth and development are unique and that there is no need to excessively pursue comparisons with others [10]. Secondly, schools and the community should provide more mental health education and support services. By popularizing mental health knowledge, students can better understand their emotions and needs and learn to cope with stress and frustration effectively. In addition, schools can set up psychological counseling centers to provide students with professional psychological counseling and support.

4. Conclusion

This article is based on Java, JSP, CSS, servlet, and other methods to carry out a java web research on students' heart health assessment. The results were obtained nowadays students face the pressure of life is very easy to produce heart problems, the need for students to conduct regular heart health assessment to reduce the students traveling heart problems. The Java web for mental health assessment is in the form of an online questionnaire and the questions are all multiple choice, so students can easily take the mental health assessment without spending extra time and effort. In addition, the system automatically collects and analyzes students' mental health data, and clearly shows the corresponding problems and solutions to the current user, while providing a reference basis for teachers, schools, and parents. Based on the assessment results, parents and teachers can provide personalized counseling and assistance to students to improve their learning results and self-confidence. Based on the assessment data, schools can formulate corresponding educational policies and measures to optimize the curriculum and promote the overall development of students. Based on a large amount of psychological questionnaire data, it can analyze the trend of users' psychological condition. In summary, by analyzing this data in-depth, valuable user insights can be gained, users' mental health status can be assessed, user groups can be segmented, trends can be predicted, and interdisciplinary research can be facilitated. These values not only help to improve competitiveness and user experience but also contribute to the advancement and development of the mental health field. This study has achieved some results in the assessment of student's mental health, but at the same time, there are some limitations. First, the sample size of this study is relatively small, which may not fully reflect the mental health status of all students. Second, this study mainly relied on online questionnaires for data collection, which may have data bias and limitations. This study mainly focused on the assessment of students' mental health and did not address the aspects of mental health intervention and treatment. The outlook of future research will be to expand the sample scope, introduce multivariate assessment methods, deepen data analysis, focus on mental health interventions and treatments as well as interdisciplinary cooperation, to improve the universality, accuracy, and depth of the study, provide more valuable references for educational policy-making and school management, etc., and at the same time focus on the follow-up application of the assessment results, provide personalized counseling and assistance to teachers, parents, and students, develop appropriate interventions and treatments, and jointly explore the issue of student's mental health, to improve the depth and breadth of the study, and to make more contributions to the cause of students' mental health education.

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